

# Claims

- [c0001] 1. A light source for the illumination of microscopic specimens, comprising:
- a first and a second laser wherein each of which emits light into a first beam path and into a second beam path;
  - an optical combining means being introduced in the first and in the second beam path; and
  - a displaceable deflection unit for setting a path length difference between the light of the first and the second laser.
- [c0002] 2. The light source as defined in Claim 1, wherein both the first laser and the second laser are short-pulse lasers that are passively synchronized with one another.
- [c0003] 3. The light source as defined in Claim 1, wherein a measurement unit for ascertaining cross-correlation is provided, which receives a portion of the light of the first laser and a portion of the light of the second laser, and is used to ascertain a setting signal for adjusting the synchronization or controlled delay of the laser pulses of the first and/or second laser.
- [c0004] 4. The light source as defined in Claim 1, wherein the

first laser is a Ti:sapphire laser.

[c0005] 5. The light source as defined in Claim 1, wherein the second laser is a Nd:YVO<sub>4</sub> laser that is optically pumped with a diode laser.

[c0006] 6. The light source as defined in Claim 1 wherein the first laser, the second laser, the diode laser, the displaceable deflection unit, the optical combining means, and the measurement unit for ascertaining cross-correlation are combined into one module.

[c0007] 7. The light source as defined in Claim 6, wherein the module is flange-mounted onto an optical examination apparatus for microscopic specimens.

[c0008] 8. A scanning microscope system having:  
-a beam deflection device for guiding an illuminating light beam over a sample,  
-a microscope optical system,  
-a detector,  
-a light source which emits a combined light beam that is generated by a first laser and a second laser; and  
-an optical combining means which synchronizes the light of the first laser with the light of the second laser.

[c0009] 9. The scanning microscope system as defined in Claim 8, wherein the first laser defines a first beam path and

the second laser a second beam path; and the optical combining means is introduced in the first and in the second beam path; and a displaceable deflection unit for setting a path length difference between the light of the first and the second laser is provided.

[c0010] 10. The scanning microscope system as defined in Claim 9, wherein the displaceable deflection unit is provided in the beam path of the first laser or of the second laser.

[c0011] 11. The scanning microscope system as defined in Claim 10, wherein the light source is equipped with a measurement unit for ascertaining cross-correlation which receives a portion of the light of the first laser and a portion of the light of the second laser, and can be used to ascertain a setting signal for adjusting the synchronization or controlled delay of the laser pulses of the first and/or second laser.

[c0012] 12. The scanning microscope system as defined in Claim 8, wherein the first laser of the light source is a Ti:sapphire laser.

[c0013] 13. The scanning microscope system as defined in Claim 8, wherein the second laser is a Nd:YVO<sub>4</sub> laser that is optically pumped with a diode laser.

[c0014] 14. The scanning microscope system as defined in Claim

8, wherein the first laser, the second laser, the diode laser, the displaceable deflection unit, the optical combining means, and the measurement unit for ascertaining cross-correlation are combined into one module.

[c0015] 15. The scanning microscope system as defined in Claim 14, wherein a computer that is connected to the module is provided; and the computer has a display on which adjustment data and/or adjustment aids for synchronization of the first and second laser are displayed for the user.